

A new species of *Mitra* (*Fusimitra*) (Gastropoda: Mitridae) from the northwestern Gulf of Mexico

Emilio F. GARCÍA
115 Oak Crest Dr.
Lafayette, LA 70503
Efg2112@louisiana.edu



KEYWORDS. Mitridae, *Mitra* s.s., new species, Gulf of Mexico

ABSTRACT. A new species of *Mitra* (*Fusimitra*) inhabiting the pinnacles off the Louisiana coast is described and compared with *Mitra* (*F.*) *antillensis* Dall, 1889, its most similar congener.

INTRODUCTION

On the continental shelf off the Louisiana and Texas coasts there is a series of banks or "pinnacles" peculiar to the northwestern Gulf of Mexico. Their geological history indicates that at one time, when the sea-level was much lower, these were shallow intertidal areas where coral grew. Nowadays these banks, which arise abruptly from a soft, muddy bottom to 20 to 90 m from the surface, have a summit composed of calcareous rubble, a product of their former coral fauna. These formations have been discussed by Williams (1951), Stetson (1951), Goedicke (1955) and others; however, their molluscan fauna was not seriously addressed until Parker & Curray (1956), who listed a large number of species and noted their similarity to the shallow-water Caribbean fauna (*Idem*: 2428). The list of the rich molluscan fauna of the pinnacles was later expanded by a number of expeditions supported by grants, mostly from the National Science Foundation, to the Biology Department at the University of Louisiana at Lafayette. They have been reported elsewhere (García, 2000, 2002, 2007, 2008, 2010; García & Lee, 2002, 2003, 2004).

The new species of *Mitra* (*Fusimitra*) described herein seems to be confined to the top of the offshore pinnacles discussed above. Although there have been dredging cruises in the northeastern quadrant of the Gulf of Mexico south to Dry Tortugas, and in the southeastern quadrant at Bahía de Campeche, Mexico, no specimens of the new species have been collected in those areas. The 10 specimens that comprise the type material were collected during seven expeditions expanding a period of 11 years, from 2000 to 2010. Only two specimens have been collected alive.

All cruises were done on the R/V *Pelican*, a research vessel administered by the Louisiana Universities Marine Consortium (LUMCON) using a box dredge roughly 3 ft. by 3 ft. by 1 ft.

Abbreviations

BMSM: Bailey- Matthews Shell Museum, Sanibel, Florida, USA.

CMT: Charlotte M. Thorpe collection, Jacksonville Beach, Florida, USA.

EFG: author's collection

FF: Frank Frumar collection, Kirkwood, Missouri, USA.

SBMNH: Santa Barbara Museum of Natural History, Santa Barbara, California, USA.

TCWC: The Texas Cooperative Wildlife Collection, Texas A & M University, College Station, Texas, USA.

USNM: United States National Museum, Washington, D.C., USA

SYSTEMATICS

Family MITRIDAE Swainson, 1829

Genus *Mitra* Lamarck, 1798

Type species: *Voluta episcopalis* Linnaeus, 1758 (= *V. mitra* Linnaeus, 1758 [ICZN, 1969]) by subsequent designation of Montfort (1810: 543).

Mitra ulala n. sp.

Figs. 1-15

Type material. Holotype (Figs. 1-3) USNM 1155049, 28°05.95'N, 91°01.34'W, 69-68 m, length 30.5 mm, width 10.3 mm; paratype 1 (Fig. 4) USNM 1155050, 28°06.217'N, 91°07'W, 75-65 m, length 21.9 mm, width, 8.75 mm; paratype 2 USNM 1155051, 28°06.71'N, 91°02.50'W, 57-71 m, length, 22.0 mm, width 8.7 mm; paratype 3. TCWC 4-5247, 28°05.76'N, 91°01.15'W -, 64.7-62.1 m, length 25.6 mm, width 9.2 mm; paratype 4 (Fig. 7) USNM 1155052, 27°58.01'N 92° 35.67'W, 75-85 m, length 27.1 mm, width 8.4 mm; paratype 5 (Fig. 8) BMSM 17952, 28° 6.21'N, 91° 2.23'W, 99.3 m, length 21.9 mm, width 8.0 mm; paratype 6 (Figs. 5-6) SBMNH 149759. 28°38.16'N, 89°33.19'W, 60-70 m, length 18.8 mm, width 7.6 mm; paratype 7 (Fig. 9) EFG 24308, 28°5.85'N, 91°1.28'W, 68.3 m, length 32.2 mm, width 10.8 mm; paratype 8 (Figs. 10-11) EFG 23177, 27° 59.141'N; 91° 38.832'W, 91-65 m, length 23.2 mm, width 7.8 mm; paratype 9 (Figs. 12-15) CMT, 28°05.552'N, 91°00.82'W, 63-64 m, length 23.7 mm, width 8.7 mm.

Type locality. Louisiana, off Isles Dernieres, 28°05.95'N, 91°01.34'W, 69-68 m

Distribution. Offshore Louisiana pinnacles, 57- 99 m.

Description. Shell up to 32.2 mm in length, elongate-ovate, average width/ length ratio 0.37. Protoconch damaged, slightly tilted from axis (Fig. 14), of at least 3 smooth, conical, tan whorls. Teleoconch of 8 whorls; whorls very narrowly shouldered, straight-sided. Suture channeled. Axial sculpture of numerous narrow, strong cords on first 5 or 6 whorls; cords narrower than interspaces, diminishing in strength on later whorls, obsolete on last whorl. Spiral sculpture of 4 strong, wide cords on early whorls, 5 on later whorls; interspaces pitted; cords becoming strongly nodulous as they cross over axial elements, creating a strong clathrate pattern of nodes and pits on first 5 whorls (Figs. 3, 6, 11), diminishing in strength on later whorls, obsolete on last whorl of mature specimens except for two cords next to suture and at base of whorl, where numerous weak, slightly nodulous spiral cords still show. Aperture approximately half the length of shell, narrowly pointed posteriorly, with relatively wide siphonal canal anteriorly; outer lip simple, only slightly thickened; parietal wall of adult specimens with well-delineated, thin callus posteriorly, thickened and slightly raised anteriorly, producing 4 columellar folds; posterior fold largest, prominent; next two folds proportionately smaller; last fold almost obsolete. Shell rusty-brown in fresh specimens, with white amorphous white blotches at suture; blotches tending to form small to large axial flammules that may cross entire whorl; a well-delineated to nebulous white band appearing at mid-section of last whorl; aperture in fresh specimens mauve. Animal translucent-white, with opaque, white to pale- yellow blotches; foot and siphon pale yellowish-cream (Fig. 15).

Remarks. Cernohorsky (1976: 383) differentiates *Fusimitra* Conrad, 1855 from other subgenera in Mitridae by its early whorls showing a clathrate sculpture similar to *Cancilla* but adult whorls becoming smoother, not unlike those of *Mitra* s.s. As these characters apply to *Mitra ulala*, I have placed this new species in *Fusimitra*.

The type series of *Mitra (Fusimitra) ulala* is consistent in most characters. The two variables are the basic color, which ranges from rusty-brown in live collected specimens to orange and yellow in older specimens, and the quantity and shape of the white blotching. Only one, a live-collected specimen, had an almost intact protoconch, which is tilted (Fig. 14); the second live-collected specimen has a partial protoconch that also seems to be tilted. However, at this point one cannot be sure if this is a true character of the species.

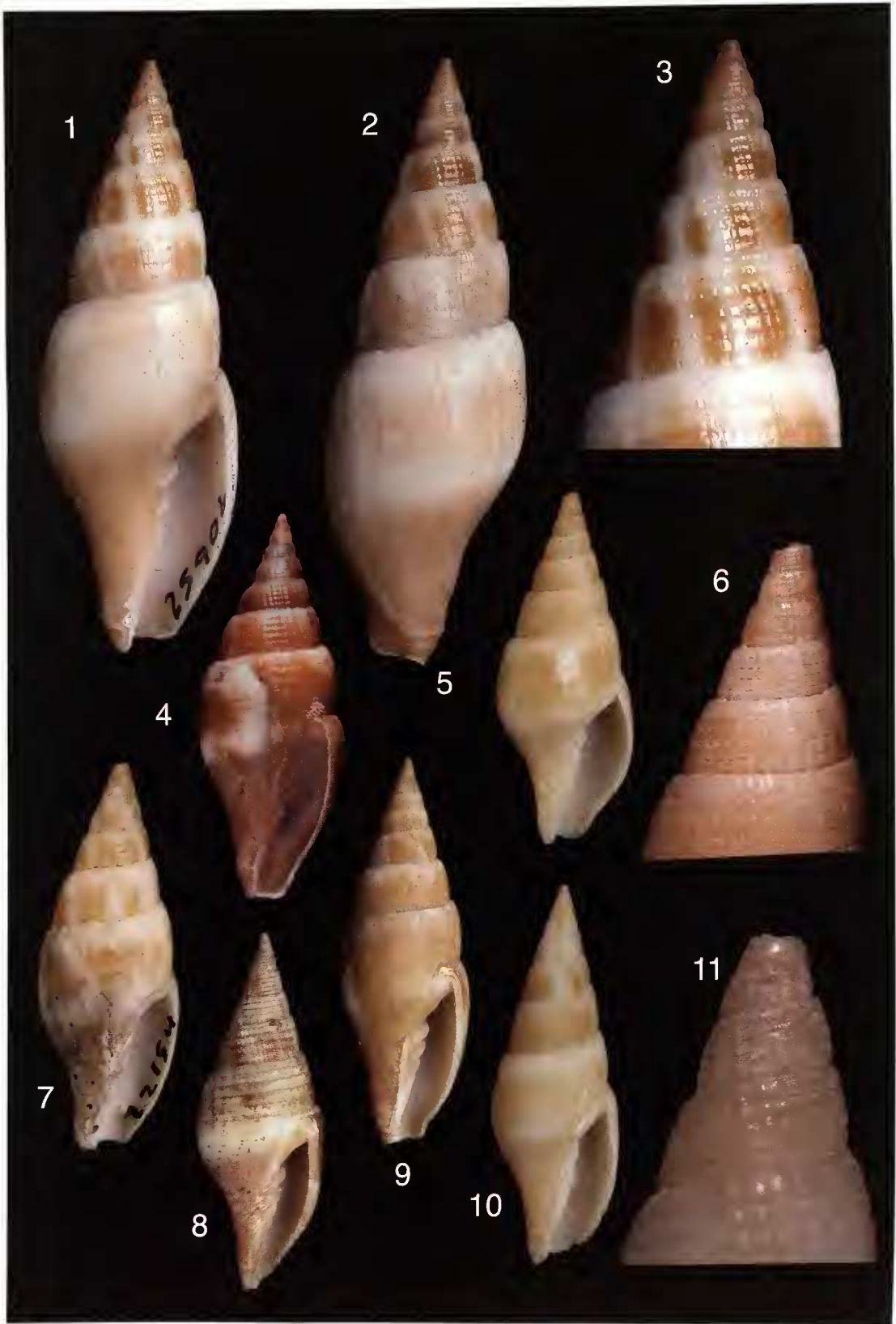
Mitra (Fusimitra) ulala n. sp. is very different from most other western Atlantic *Mitra* s.s. such as *Mitra barbadensis* (Gmelin, 1791), *Mitra damasomonteiroi* Cossignani & Cossignani, 2007, *Mitra espinosai* Sarasúa, 1978, *Mitra lenhilli* Petuch, 1988, *Mitra leonardi* Petuch, 1990, *Mitra nodulosa* (Gmelin, 1791), *Mitra pallida* Usticke, 1959, and *Mitra semiferruginea* Reeve, 1845. It can only be confused with its congener, *Mitra (F.) antillensis* Dall, 1889.

Mitra antillensis (Figs. 16-20) is a widespread species, ranging from North Carolina to Brazil. It is very rare in the Gulf of Mexico, most of the specimens having been found in the southeastern quadrant of the Gulf. To the author's knowledge, only three specimens have been collected in the northwestern Gulf of Mexico, one off Texas, at Alaminos Station 72-A4 (Fig. 19) and two off Louisiana: at Diaphus Bank, 28°5'N, 90°42'W, in 92 m (length 52.5 mm, width 15.6 mm); and at one of the pinnacles, 27° 49' N 92° 53.5' W, 75-85 m (Figs. 17-18). These three specimens are consistent with USNM 62103 (Fig. 16), the specimen designated by Cernohorsky (1976: 387- 388; pl. 326, fig. 4) as the "selected holotype" (lectotype) for this taxon and preclude the possibility that *Mitra ulala* is an ecomorph of *M. antillensis*. *Mitra antillensis* differs from the new species in the following characters:

1. It grows to a larger size. The lectotype has 8 teleoconch whorls and measures 81 mm. The holotype as well as paratypes 7 and 8 of *M. ulala* also have 8 teleoconch whorls and measure respectively 30.5mm, 32.2 mm and 23.2 mm; moreover, all other paratypes, which measure 18.8 mm to 27.1 mm, have at least 7 whorls.

Figures 1-11. *Mitra ulala* n. sp.

1-3. Holotype USNM 1155049, 28°05.95'N, 91°01.34'W, 69-68 m, length 30.5mm. width 10.3 mm. 4. Paratype 1, USNM 1155050, 28°06.21'N, 91°07'W, 75-65 m, length 21.9 mm, width, 8.75 mm. 5-6. Paratype 6 SBMNH 149759, 28°38.16'N89°33.19'W, 60-70 m, length 18.8 mm, width 7.6 mm 7. Paratype 4 USNM 1155052, 27°58.01'N 92° 35.67'W, 75-85 m, length 27.1 mm, width 8.4 mm. 8. Paratype 5, BMSM 17952, 28° 6.21'N, 91° 2.23'W, 99.3 m, length 21.9 mm, width 8.0 mm. 9. Paratype 7, EFG 24308, 28°5.85'N, 91°1.28'W, 68.3 m, length 32.2 mm, width 10.8 mm. 10-11. Paratype 8, EFG 23177, 27° 59.141'N; 91° 38.832'W, 91-65 m, length 23.2 mm, width 7.8 mm.



2. It is proportionately narrower than the new species. The lectotype, and four specimens from the Gulf of Mexico (1 from Dry Tortugas, 2 from Louisiana, and 1 from Texas) have respectively a width/length ratio (W/L) of 0.29, 0.30, 0.30 and 0.29. The type material of *M. ulala* ranges from 0.34 to 0.40, with an average of 0.37 W/L.

3. Its surface sculpture is different. *Mitra antillensis* has a sculpture dominated by spiral elements, which become unusually strong below the suture, 3 or 4 in earlier whorls, 6 or 7 on last whorl. In *M. ulala* the spiral sculpture near the shoulder is of equal strength on all teleoconch whorls, and only two cords show by the body whorl suture of two adult specimens. Moreover, the first 5 whorls of *M. ulala* have strongly developed axial and spiral elements (Figs. 3, 6, and 11). Although some specimens of *M. antillensis* from Barbados are more heavily sculptured on early whorls than those from more northern latitudes, they don't show the heavily clathrate pattern of the new species. Finally, the number of spiral cords on *Mitra antillensis* continue to increase with each whorl, the lectotype showing about 10 on the penultimate whorl. *Mitra ulala* has 4 on early whorls and no more than 5 on later whorls (Compare Figs. 3 and 18).

4. The coloration of *Mitra antillensis* is rather subdued, from grayish-white to tan, sometimes with a suffused white band by the suture; it also has an olivaceous periostracum. *Mitra ulala* has a thin, transparent periostracum and a pattern of coloration not found in *M. antillensis*.

Etymology. Named for the University of Louisiana at Lafayette, located in Acadia Parish, a French-speaking area of Louisiana. Although its official acronym is ULL, the jovial acronym "ULALA" has been used to refer to this institution.

ACKNOWLEDGEMENTS

I am very much indebted to Drs. Darryl Felder and Suzanne Fredericq, faculty members of the Biology Department at the University of Louisiana at Lafayette for inviting me to join them in their expeditions on the R/V *Pelican*, on which most of the specimens used for this article were collected. I am also very grateful to Mrs. Charlotte Thorpe, of Jacksonville Beach, Florida, for allowing me to use her photograph of the animal of *Mitra ulala*, as well as for lending me the specimen

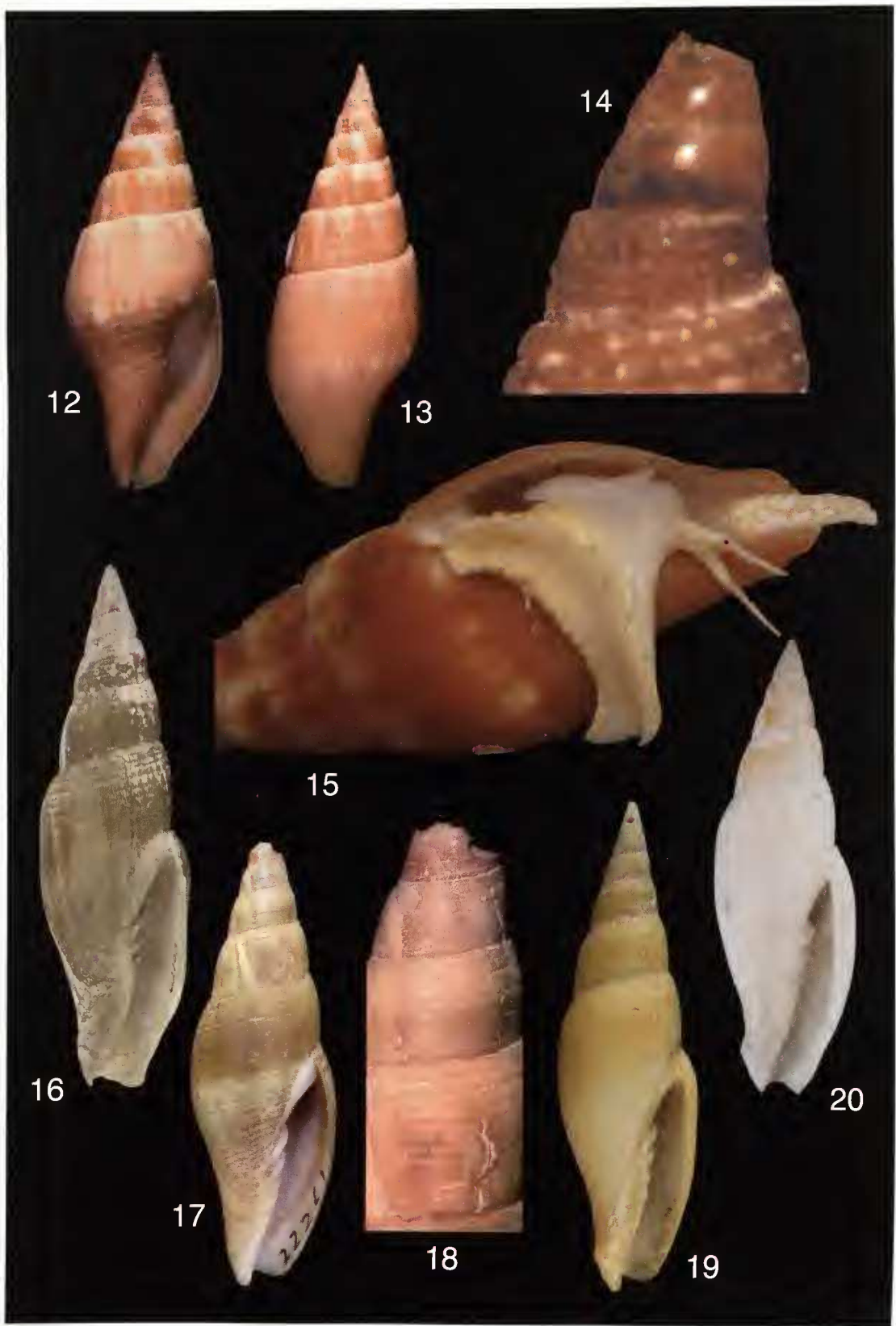
for further photography. Dr. Harry G. Lee, of Jacksonville, Florida, has reviewed this study and considerably improved on its quality, I also would like to thank the following individuals for providing information and/or images of *Mitra antillensis* for this study: Linda Ward and Mignonette Doley Johnson, United States National Museum; Dr. Fabio Moretzsohn, Harte Research Institute for Gulf of Mexico Studies, and Texas A&M University-Corpus Christi, and Dr. Mary Wicksten, Texas A&M University-College Station; and Mr. Frank Frumar, Kirkwood, Missouri, and Mr. Steve Kern, Key West, Florida. Most of the material for this study is based upon work supported by the National Science Foundation under Grant No. 0315995 and the RAPID grant.

REFERENCES

- Cernohorsky, W.O., 1976. The Mitridae of the world Part I. The subfamily Mitrinae. *Indo-Pacific Mollusca* 3(17): 273-528. September 28.
- García, E. F. 2000. Surprising new molluscan records from Louisiana and the northwestern Gulf of Mexico. *American Conchologist* 28(3):5-6.
- García, E. F. 2002. More discoveries from a collecting expedition off the Louisiana coast. *American Conchologist* 30(1):6-8.
- García, E. F. 2007. A new species of *Cosmioconcha* (Gastropoda: Columbellidae) from the northern Gulf of Mexico. *Novapex* 8(2): 43-46.
- García, E. F. 2008. An extension of the genus *Spinospella* (Bivalvia: Verticordidae) in the Gulf of Mexico. *American Conchologist* 36(3): 8-9.
- García, E. F. 2010. A geographic extension for two species of *Favartia* (Muricidae: Muricopsinae) from the western Atlantic. *American Conchologist* 38(3): 10-11.
- García, E. F. & H. G. Lee. 2002. Report on molluscan species found in the offshore waters of Louisiana, including many extensions of known range and unnamed species. *American Conchologist* 30(4):10-13.
- García, E. F. & H. G. Lec. 2003. Report on molluscan species found in the offshore waters of Louisiana, including many extensions of known range and unnamed species. II. *American Conchologist* 31(1):26-29.

Figures 12-20

12-15. *Mitra ulala* n. sp. Paratype 9 CMT, 28°05.552'N, 91°00.82'W, i63-64 m, length 23.7 mm, width 8.7 mm. (Photograph of Fig. 15 by Charlotte Thorpe). 16- 20. *Mitra antillensis* Dall, 1889. 16. Lectotype, USNM 62103, 36 mi SE of Cape Lokout, North Carolina, 336 m, length 81.0 mm, width 40.0 mm (Photo credit: Mignonette Doley Johnson). 17-18. EFG 22261, Louisiana, 27° 49 N 92° 53.5 W, 75-85 m, length (approx.) 48 mm, width 14.5 mm. 19. TCWC 4- 2600, Texas, Alaminos Station 72-A4, 28°34.7'N, 92° 05.5'W, 39 m, length 59.9 mm, width 17,1 mm. 20. FF, 16 mi. SW of Key West, Florida, 167 m (Photo credit: Steve Kern).



- García, E. F. & H. G. Lee. 2004. Report on the malacofauna of offshore Louisiana Waters - including many range extensions and un-named species. III. *American Conchologist* 32(3): 21-24.
- Goedicke, T. R. 1955. Origin of the pinnacles of the continental shelf and slope of the Gulf of Mexico. *Texas Journal of Science* 7 (2): 149-159.
- ICZN (International Commission for Zoological Nomenclature). 1969. Opinion 885. *Voluta mitra* Linnaeus, 1758 (Mollusca: Gastropoda) added to the Official List. *Bulletin of Zoological Nomenclature* 26: 125-127. 24 October.
- Montfort D. de. 1810. *Conchyliologie systématique, et classification méthodique des coquilles; offrant leurs figures, leur arrangement générique, leurs descriptions caractéristiques, leurs noms; ainsi que leur synonymie en plusieurs langues. Ouvrage destiné à faciliter l'étude des coquilles, ainsi que leur disposition dans les cabinets d'histoire naturelle. Coquilles univalves, non cloisonnées. Tome second.* Schoell, Paris. Pp. [1-3]. 1-676. <<http://www.biodiversitylibrary.org/item/41566#page/553/mode/1up>>
- Parker, R. H. and J. R. Curray. 1956. Fauna and bathymetry of banks on continental shelf, northwest Gulf of Mexico. *Bulletin of the American Association of Petroleum Geologists* 40: 2428- 2439.
- Stetson, H. C. 1953. The sediments of the western Gulf of Mexico. Part I - The continental terrace of the western Gulf of Mexico. Its surface sediments, origin and development, *Papers in Physical Oceanography and meteorology of Massachusetts Institute of Technology and Woods Hole Oceanographic Institute* 12(4)1-45.
- Williams, H. F. 1951. The Gulf of Mexico adjacent to Texas. *Texas Journal of Science* 3(2): 237-250.